

Department of Social and Health Services
State: WASHINGTON

Disproportionate Share Hospital Payments - State Psychiatric Hospitals, Statistical Sampling Plan.

Purpose: Using statistical means described in this sampling plan the Mental Health Division (MHD) will measure the net uncompensated costs of services delivered to uninsured indigent patients of state owned psychiatric hospitals. The resulting value will be paid as Medicaid Disproportionate Share Hospital payments to the hospitals.

Sampling Theory: Variables Estimation Sampling as implemented with computer software devised by U.S. Department of Health and Human Services, Office of Inspector General, Office of Audit Services. This software is named "RAT-STATS".

A thorough discussion of Variables Estimation Sampling is found in Sampling Methods for Auditors, an Advanced Treatment; by Herbert Arkin, 1982, McGraw-Hill.

Definitions

Institutions of Universe:

Eastern and Western State Hospitals are the topic of the sampled universe and will be treated as individual estimation entities under this sampling plan.

Potentially Uninsured Patients (PUP):

PUP are all patients in the psychiatric hospitals between the ages of 21 and 65. Patients in other age groups are considered to be potentially insured through operation of the federal medical programs of Medicare and Medicaid.

Sample period:

Each fiscal year beginning on July 1 and ending on the subsequent June 30 of the following year is a separate sample period.

Sample unit:

Each separate psychiatric hospital inpatient day of PUP is the sample unit. The sample unit is abbreviated as PUPD. The cost of each PUPD is the per diem computed by dividing total days into total costs. The net cost of a PUPD is the per diem minus all revenue attributable to that day.

Hospital stay;

All the PUPD are confined within PUP hospital stays. A hospital stay is defined as one or more consecutive inpatient days (count day of admission but not day of release). The stay begins with the first day of the fiscal year if the patient was in residence on the last day of the prior fiscal year, or it begins with the first day the patient becomes age 22 if the patient was in residence on the last day they were age 21 or it begins with the day of admission.

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The stay ends with the last day of the fiscal year if the patient was in residence on the first day of the following fiscal year, or it ends with the last day the patient was aged 64 if they were in residence on the first day they became aged 65, or it ends when the patient is released for any reason and is not in residence at the midnight census.

Sample Population (also Sample Universe).

The sample universe or population is the total of PUPDs in each hospital for a fiscal year.

Population Array:

The purpose of the population array is to arrange the universe in such a fashion that any natural biases are removed. To this end the array will be fashioned in a two step process. In step one, each PUP stay will be arranged in an ascending hierarchy by three orders of sort. The first sort level will be the PUP stay date of admission for the stay, the next sort criteria will be the date of release (if patient still in residence when population is identified the date of computer run will be last day for array purposes), and the final sort will be the alphabetical sort of PUP names. In the second step, each day in each stay beginning with the first day of the first stay arranged in step 1 and ending with the last day of the last stay will be assigned a consecutive population number, beginning with number 1. As test of accuracy the total days in the stays listed in step 1 will be compared to the final population day consecutive number in step 2. They should be the same.

Sample Selection:

Samples will be selected randomly with RAT-STATS random number generator.

Sample size:

Samples will be selected to a 95% confidence level with RAT-STATS.

Countable revenue:

Countable revenue will be all revenue received from or on behalf of each PUPD. In event revenue is received that is not identified to specific days, it will be prorated by the number of days in the stay. If payments are encountered that cover more than one stay it will be prorated over the days reported in the payment document.

Sampling Process

The universe will be devised with computer capabilities from MHD database of all PUP having hospital stays in each hospital. The universe will be arrayed and numbered with sample numbers as described in definitions above. RAT-STATS random number generator will be used to select 500 samples.

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A pre-sample will be the first 50 random selections. The pre-sample will be reviewed for PUPD net uncompensated costs as defined below and its results will be processed through RAT-STATS to compute a standard deviation. The pre-sample standard deviation will be used in RAT-STATS to identify a sample size at the 95% confidence level. Additional samples will be selected from the 500 random samples in sequential order from the pre-sample end point to be added to the pre-sample to reach the computed 95% sample size. The added samples will be reviewed as described below. Each sample will show:

- | | |
|--------------------------|--------------------------------------|
| a. Sample number | b. Sample service date (sample unit) |
| c. Patient record number | d. Patient name |
| e. Admission date | f. Release date |
| g. Stay from date | h. Stay to date |
| i. Days of stay | |

Review process:

All selected samples will be reviewed for patient revenue by OFR and revenue will be reported for each sampled PUPD as either i. insurance proceeds or ii. all other revenue.

Estimation computation:

Costs for each selected sample unit (PUPD) will be the per diem for the hospital attributable to the reimbursement year. The total countable revenue for each PUPD will be subtracted from the per diem to compute net uncompensated costs of each PUPD.

The net uncompensated costs of all sampled PUPDs will be accumulated and divided by the total units of the sample to compute the mean PUPD sample value of net uncompensated costs of services to uninsured patients. The mean hospital PUPD sample value will be multiplied by the grand total of PUPD in the universe to compute mid-point of the estimation range.

Estimation evaluation:

The detail of estimation computation will be examined by RAT-STATS to compute upper and lower estimation amounts at the 95% confidence level. If the resulting estimation precision is greater than 10% of the mid-point, additional samples will be selected and reviewed in 25% increments of the 95% confidence level sample size until the original sample size has been doubled. If at that point, the estimation precision remains above 10% the mid-point of the estimate will become the final value for purposes of the goal.

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Approved: 1/23/95 Effective: 7/1/94

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Assumptions

The net costs of uncompensated services delivered to uninsured patients at Western State Hospital (WSH) is predicted to be \$75 million and Eastern State Hospital (ESH) is assumed to be about 1/3 of Western's value.

Both hospitals have average occupancy of over 90%

The average length of stay in each hospital will be over 90 days.

WSH is predicted to have about 150,000 PUPDs (sample units) and ESH is predicted to have 65000 PUPDs.

ESH and WSH are separate Medicaid providers, with different per diem rates, necessitating separate sample entities.

The federal Medicaid DSH allotment for F/Y 95 will be low enough that the 200% transition factor will cause costs to exceed the limit, thus some of the transition costs and sample estimation at midpoint will not be needed to achieve the federal ceiling.

Patients in rare cases receive large payments (tort recoveries, retroactive insurance payments, estate settlements, etc.) that will exceed the cost of the stay being sampled. The value above 100% of the costs of the sample PUPD will be assumed to belong to stays and days outside the sample and excluded from the estimation computations.

Crude estimates predict that about 60% of PUP have no insurance or other resources, about 30% of the PUP have minor insurance coverage, about 2% have significant insurance resources and the remainder require review of patient documentation on an individual basis to determine insurance status.

The federal medical programs of Medicare and Medicaid operate to fully cover costs of patients eligible for both. Patients eligible for only Medicare will be fully insured to the extent that they have not reached a spell of illness limit or lifetime inpatient psychiatric limits. Most Medicare only patients have achieved one of these limits due to the nature of their illness as reflected in the extended average length of stay.

If the PUPD revenue records are reviewed 6 months or more after the end of the sample period, it can be assumed that no significant revenue receivables exist, and that no significant revenue reversals remain unprocessed.

94-18
TN ~~94-19~~ Approved: 1/23/95 Effective: 7/1/94
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